# INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 bel						
PG3612/PCT International application No.	International filing date (day/month/year) (Earliest) Priority Date (day/month/year)						
PCT/EP 99/10000	16/12/1999	18/12/1998					
Applicant  GLAXO GROUP LIMITED et al	•						
according to Article 18. A copy is being tra  This international Search Report consists							
	International search was carried out on the bar less otherwise indicated under this item.	sis of the international application in the					
the international search w Authority (Rule 23.1(b)).	as carried out on the basis of a translation of t	he International application furnished to this					
was carried out on the basis of the contained in the internation filed together with the international subsequently to furnished subsequently to the statement that the subsequently to the statement that the subsequently to the statement that the informational application at the statement that the informational claims were found to the statement that the information is lack.  2. X Certain claims were found to the statement that the information is lack.	mational application in written form.  In international application in computer readable form.  It to this Authority in written form.  It to this Authority in computer readble form.  It is subsequently furnished written sequence listing does not go beyond the disclosure in the lon as filed has been furnished.  In information recorded in computer readable form is identical to the written sequence listing has been furnished.						
4. With regard to the title,							
the text is approved as submitted by the applicant. the text has been established by this Authority to read as follows:							
	bmitted by the applicant. hed, according to Rule 38.2(b), by this Authorit date of mailing of this international search rep						
6. The figure of the drawings to be publi	shed with the abstract is Figure No.						
as suggested by the applic	cant.	None of the figures.					
because the applicant falled to suggest a figure.							
Decause this figure better	characterizes the invention.						

Box I	Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This into	remational Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. X	Claims Nos.:  Claims Nos.:  Decause they relate to subject matter not required to be searched by this Authority, namely:  Remark: Although claim 20  is directed to a method of treatment of the human/animal
. []	body, the search has been carried out and based on the alleged effects of the compound/composition.
2 [_	Claims Nos.: because they relate to parts of the international Application that do not comply with the prescribed requirements to such an extent that no meaningful international Search can be carried out, specifically:
з. 🗌	Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II	Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This Inte	emational Searching Authority found multiple inventions in this international application, as follows:
_	
1.	As all required additional search fees were timely paid by the applicant, this international Search Report covers all searchable claims.
2.	As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
з. 🗀	As only some of the required additional search fees were timely paid by the applicant, this international Search Report covers only those claims for which fees were paid, specifically claims Nos.:
. [-]	
4.	No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
_	
Remark (	on Protest  The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.
	110 process accompanies die payment of auditorial section 1906.

A61K31/445

A CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07D211/58 C07D295/20 C07K5/06 C07C271/40

C07D307/91 C07K17/08 A61K31/5375

C07D405/12 C07K1/04 A61P29/00

C07D307/66 A61K31/325

According to international Patent Classification (IPC) or to both national classification and IPC

A61K31/496

#### **B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols) IPC 7 C07D C07C C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENT	8 CONSIDERED	TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 53817 A (MERK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application schemes 1-5 claims 1,11,13; examples	1,16, 18-21, 26-28
A	WO 98 53814 A (MERCK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application scheme 1 claims 1,5,154,18-20; examples	1,16, 18-21, 26-28
A	WO 98 53818 A (MERCK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application claims 1,5,8-10	1,16, 18-20

Turner documents are asted in the commutation of box C.	Patent family members are listed in annex.
<ul> <li>Special categories of cited documents:</li> <li>"A" document defining the general state of the art which is not considered to be of particular relevance</li> <li>"E" earlier document but published on or after the international filling date</li> <li>"L" document which may throw doubts on priority claim(e) or which is cited to establish the publication date of another citation or other special reason (as specified)</li> <li>"O" document referring to an oral disclosure, use, exhibition or other means</li> <li>"P" document published prior to the international filing date but later than the priority date claimed</li> </ul>	"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.  "&" document member of the same patent family
Date of the actual completion of the international search	Date of mailing of the International search report

22 March 2000

29/03/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentiaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo ni, Fax: (+31-70) 340-3018

Authorized officer

Hass, C

C.(Continu	ation) DOCUMENTS CONSIDER TO BE RELEVANT	21 397 10000
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to daim No.
A	GB 1 201 121 A (FARBWERKE HOECHST AG) 5 August 1970 (1970-08-05) claims 1,4,5,7; examples	1,16, 22-25
A	US 4 105 602 A (R. L. COLESCOTT ET AL.) 8 August 1978 (1978-08-08) column 2, line 26 - line 37 columns 3 and 4, bottom of page, coupling reaction; columns 5 and 6, top of page, coupling reaction	26–28
A	WO 98 54207 A (CELLTECH THERAPEUTICS LTD.) 3 December 1998 (1998-12-03) cited in the application	
A	WO 97 03094 A (BIOGEN, INC.) 30 January 1997 (1997-01-30) cited in the application	
İ		
;		
PCT/IQA/24		

#### infoguation on patent family members

man anta k. n⊌nja sim walimak bibu bebu bulimbu bebudik

International Application No

EP 99/10000 **Publication** Patent document **Publication** Patent family cited in search report member(s) date date AU 7703198 A 30-12-1998 03-12-1998 WO 9853817 Α NONE WO 9853814 A 03-12-1998 30-12-1998 AU 7703298 A 03-12-1998 WO 9853818 A CH 496668 A 30-09-1970 GB 1201121 A 05-08-1970 29-10-1970 DE 1593858 A DE 1643327 A 27-05-1971 6802947 A 03-09-1968 NL US 3538070 A 03-11-1970 08-08-1978 NONE US 4105602 AU 7667498 A 30-12-1998 WO 9854207 A 03-12-1998 0984981 A 15-03-2000 EP 24-02-2000 WO 9703094 30-01-1997 ΑU 716276 B Α 10-02-1997 AU 6489496 A BG 102241 A 30-12-1998 BR 9609782 A 09-03-1999 30-01-1997 CA 2226868 A CN 1193325 A 16-09-1998 CZ 15-04-1998 9800052 A 20-05-1998 EP 0842196 A 05-03-1998 FI 980033 A 28-01-1999 HU 9802202 A 28-09-1999 JP 11511124 T NO 980097 A 11-03-1998 PL 324491 A 25-05-1998

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08-07-1998



# **PCT**

REC'D	19	DEC	2000	
WIPO			PCT	

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

15

					13			
	Applicant's or agent's file reference  See Notification of Transmittal of International							
PG3612/PCT FOR FURTHER ACTION Preliminary Examination Report (Form PCT/IPEA/416					y Examination Report (Form PCT/IPEA/416)			
		lication No.	International filing date (day/mont	h/year)	Priority date (day/month/year)			
PCT/EP	99/10	0000	16/12/1999		18/12/1998			
	International Patent Classification (IPC) or national classification and IPC C07D211/58							
Applicant								
GLAXO	GLAXO GROUP LIMITED et al.							
1. This and i	<ol> <li>This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</li> </ol>							
2. This	REPO	ORT consists of a total of	7 sheets, including this cover s	heet.				
( 	This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT). These annexes consist of a total of sheets.							
			0.100.00					
3. This	eport	contains indications relat	ting to the following items:					
1	$\boxtimes$	Basis of the report						
11		Priority						
m	$\boxtimes$	Non-establishment of or	pinion with regard to novelty, inv	entive step a	and industrial applicability			
IV		Lack of unity of invention	n		·			
V	☒	Reasoned statement un citations and explanation	der Article 35(2) with regard to ns suporting such statement	novelty, inve	ntive step or industrial applicability;			
VI		Certain documents cite						
VII		Certain defects in the inf	ternational application					
VIII	$\boxtimes$		the international application					
Date of sub	missio	n of the demand	Date of c	completion of t	his report			
23/06/20	00		15.12.20	000				
Name and representation of the presentation of	nailing exami	address of the international ning authority:	Authoriz	ed officer	SON SOES MIDITURE			
<u>)))</u>	D-80	pean Patent Office 298 Munich	Fanni,	S	Strange Strang			
Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465			· '	ne No. +49 89	2399 8712			

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/10000

## I. Basis of the report

1.	res the	sponse to an invitation	rawn on the basis of (substitute sheets which have been furnished to the receiving Office in under Article 14 are referred to in this report as "originally filed" and are not annexed to not contain amendments (Rules 70.16 and 70.17).):					
	1-7	'2	as originally filed					
	Cla	aims, No.:						
	1-2	28	as originally filed					
2.			uage, all the elements marked above were available or furnished to this Authority in the nternational application was filed, unless otherwise indicated under this item.					
		-	evailable or furnished to this Authority in the following language: , which is:					
		the language of pu	ranslation furnished for the purposes of the international search (under Rule 23.1(b)). blication of the international application (under Rule 48.3(b)). ranslation furnished for the purposes of international preliminary examination (under Rule					
3.		h regard to any <b>nuc</b>	leotide and/or amino acid sequence disclosed in the international application, the y examination was carried out on the basis of the sequence listing:					
			ternational application in written form.					
		filed together with	the international application in computer readable form.					
☐ furnished subsequently to this Authority in written form.								
		furnished subsequ	ently to this Authority in computer readable form.					
		The statement that the subsequently furnished written sequence listing does not go beyond the disclosu the international application as filed has been furnished.						
		The statement that listing has been fur	the information recorded in computer readable form is identical to the written sequence mished.					
١.	The	amendments have	resulted in the cancellation of:					
		the description,	pages:					
		the claims,	Nos.:					
		the drawings,	sheets:					
5.			en established as if (some of) the amendments had not been made, since they have been eyond the disclosure as filed (Rule 70.2(c)):					

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

		report.)					
6.	Add	litional observations, if no	ecessar	y:			
111.	Nor	n-establishment of opin	ion wit	h regard	to novelty, inventive step and industrial applicability		
1.	. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:						
		the entire international a	applicati	ion.			
	☒	claims Nos. 20.					
be	caus	se:					
	×	the said international ap not require an internation see separate sheet			said claims Nos. 20 relate to the following subject matter which does examination ( <i>specify</i> ):		
		the description, claims of that no meaningful opinion			cate particular elements below) or said claims Nos. are so unclear ned (specify):		
		the claims, or said claim could be formed.	s Nos.	are so in	adequately supported by the description that no meaningful opinion		
		no international search	report h	as been	established for the said claims Nos		
2.	2. A meaningful international preliminary examination report cannot be carried out due to the failure of the nucleotic and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:						
		the written form has not	been fu	ırnished (	or does not comply with the standard.		
		the computer readable f	orm has	s not bee	n furnished or does not comply with the standard.		
V.		soned statement under			ith regard to novelty, inventive step or industrial applicability;		
1.	State	ement					
	Nov	elty (N)	Yes: No:	Claims Claims	1-28		
	Inve	ntive step (IS)	Yes: No:	Claims Claims	1-28		
	Indu	strial applicability (IA)	Yes:	Claims	1-19 and 21-28		

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP99/10000

No: Claims

2. Citations and explanations see separate sheet

#### VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: see separate sheet

## ITEM III

Claim 20 relates to subject-matter considered by this Authority to be covered by the provisions of Rule 67.1(iv) PCT. Consequently, no opinion will be formulated with respect to the industrial applicability of the subject-matter of this claim (Article 34(4)(a)(i) PCT). See also the paragraph on: "Industrial applicability" in item V below.

#### ITEM推入

Reference is made to the following documents:

D1: WO 98 53817 A cited in the application

D2: WO 98 53814 A cited in the application

D3: WO 98 53818 A cited in the application

D4: GB-A-1 201 121

D5: US-A-4 105 602

D6: WO 98 54207 A cited in the application

D7: WO 97 03094 A cited in the application

#### NOVELTY (Article 33(2) PCT)

The present subject matter differs from D1 and D7 mainly on account of the carbamate group on position 4 of the present tyrosine residue.

The present subject matter differs from D2-D4 and D6 mainly on account of the present 2-aminopentanoyl residue.

The present subject matter differs from D5 mainly on account of the carbamate group on position 4 of the present tyrosine residue and of the present 2-aminopentancyl residue.

The present subject matter fulfil therefore the requirements of Article 33(2) PCT.

<u>INVENTIVE STEP</u> (Article 33(3) PCT)

**EXAMINATION REPORT - SEPARATE SHEET** 

D1 is considered the closest prior art and discloses biarylalkanoic acids derivatives which are antagonists of VLA-4 and/or  $\alpha_4\beta_7$ , and are suitable for the treatment of inflammatory and autoimune disorders. The present subject matter mainly differs from D1 on account of the present 4-carbamate tyrosine residue which replace the 4-(substituted)aryl phenylalanine residue in compounds of formula 1 according to claim 1 from D1 (see definition of R6 in claim 1 of D1 and compound H in scheme 3 on page 28 of D1. See also the definition of Y-R<sub>1</sub> in D1 and compare it with the present definition of  $R_3$ ).

The problem to be solved by the present application is considered to be the provision of further VLA-4 and  $\alpha_4\beta_7$  antagonists.

The problem has been solved, at least in vitro, as shown by the Pharmacological examples reported on pages 68-71 of present description.

None of the above mentioned prior art documents discloses the equivalence between 4-carbamate and 4-aryl residues, nor are other information provided by the said documents which would lead the skilled person to consider compounds of formula (I) according to present claim 1 as a solution for the aforementioned given problem. Thus, an inventive step can be acknowledged for the present subject matter (Article 33(3) PCT).

# INDUSTRIAL APPLICABILITY (Article 33(4) PCT)

For the assessment of the present claim 20 on the question whether it is industrially applicable, no unified criteria exist in the PCT Contracting States. The patentability can also be dependent upon the formulation of the claims. The EPO, for example, does not recognize as industrially applicable the subject-matter of claims to the use of a compound in medical treatment, but may allow, however, claims to a known compound for first use in medical treatment and the use of such a compound for the manufacture of a medicament for a new medical treatment.

#### ITEM VIII

In claims 22-25, the subject matter is defined by functional expression, i. e. in terms of

a desired result (e. g. "... a group capable of forming a carboxylic acid ester") and do not fulfill therefore the requirements of Article 6 PCT.

# PCT

REQUEST

The undersigned requests that the present International application be processed according to the Patent Cooperation Treaty

POI receivin	ig Oi	HIC	Ç US	COII	ر،		•
International Copplication 90.9	/	1	0	0	0	0	

International Filing Date

6 DEC 1999

(1 6. 12. **99**)

EUROPEAN PATENT OFFICE

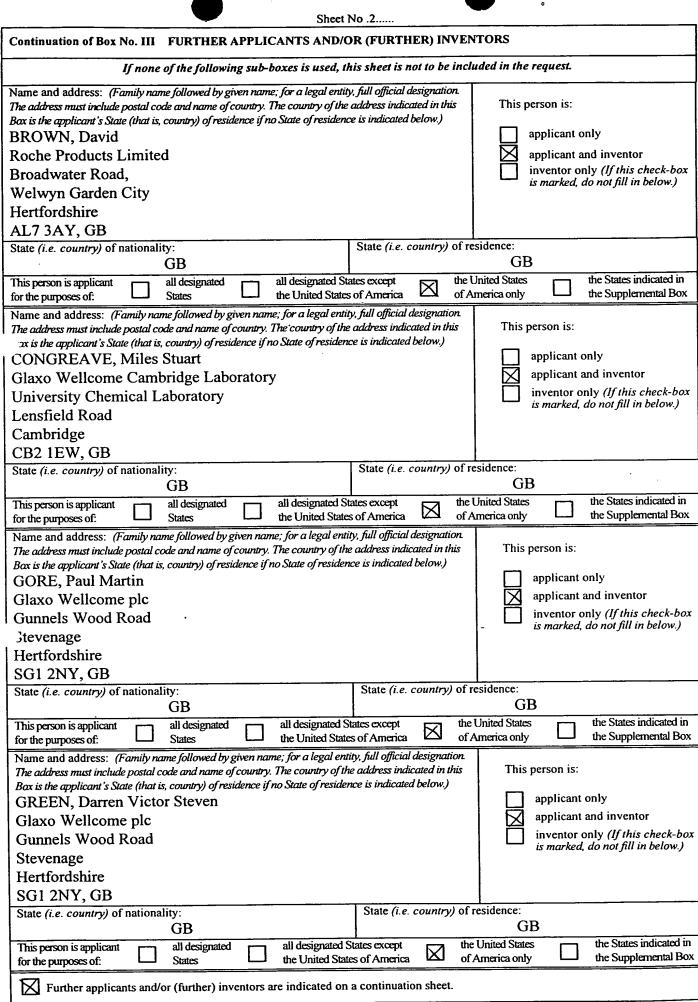
PCT INTERNATIONAL APPLICATION

Name of receiving Office and "PCT Interr

pplication"

	(if desired) (12 charact	ers maximum) PG3612/PCT						
Box No. 1 TITLE OF INVENTION	L'							
Compounds useful in the treatment of inflammatory diseases								
Box No. II APPLICANT								
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is								
indicated below).		Telephone No. 0171 493 4060						
ilaxo Group Limited		Facsimile No. 0181 966 8838						
Glaxo Wellcome House		Teleprinter No. 25456						
Berkeley Avenue		1						
Greenford, Middlesex UB6 0NN, GB								
State (i.e. country) of nationality:	State (i.e. country) of r	esidence:						
GB	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	GB						
This person is applicant all designated all designated St for the purposes of: States all designated St the United States		United States the States indicated in the merica only Supplemental Box						
Box No. III FURTHER APPLICANTS AND/OR (FURTH	HER) INVENTORS							
Name and address: (Family name followed by given name; for a legal e designation. The address must include postal code and name of country. T indicated in this Box is the applicant's State (that is, country) of residence is indicated below.)  ARMOUR, Duncan Robert  Discovery Chemistry, IPC 924  Pfizer Limited	This person is:  applicant only  applicant and inventor							
Ramsgate Road Sandwich, Kent CT13 9NJ, GB		inventor only (If this check-box is marked, do not fill in below.)						
State (i.e. country) of nationality:	State (i.e. country) of 1							
GB		GB						
This person is applicant all designated all designated S for the purposes of: States the United States		United States the States indicated in the Supplemental Box						
Further applicants and/or (further) inventors are indicated of	on a continuation sheet.							
Box No. IV AGENT OR COMMON REPRESENTATIV	E; OR ADDRESS FOR	CORRESPONDENCE						
The person identified below is hereby/has been appointed to act	on behalf							
of the applicant(s) before the competent International Authorities as:  Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country).  Telephone No.: 0171-493-4060								
TEUTEN, Andrew J.		0101 077 0020						
Glaxo Wellcome plc		Facsimile No.: 0181-966-8838						
Glaxo Wellcome House, Berkeley Avenue								
Greenford, Middlesex	Teleprinter No.: 25456							
UB6 0NN GB								
Express Mail Label rere no agent or common represe	ntative is/has been appoin	nted and the space above is used instead to						

Express Mail Label EL395942977US tere no agent or common representative is/has been appointed and the space above is used instead to is to which correspondence should be sent.



Form PCT/RO/101 (continuation sheet) (July 1998)

See Notes to the request form

Continuation of Box No. III FURTHER APPLICANTS AND/OR (FURTHER) INVENTORS					
If none of the following sub-boxes is used, this sheet is not to be included in the request.					
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  HOLMAN, Stuart  Glaxo Wellcome plc  Gunnels Wood Road  Stevenage  Hertfordshire  SG1 2NY, GB  State (i.e. country) of nationality:  State (i.e. country) of residence:					
GB GB					
This person is applicant all designated all designated States except the United States of America only the States indicated the Supplemental B					
Name and address: (Family name followed by given name; for a legal entity, full official designation.  The address must include postal code and name of country. The country of the address indicated in this x is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  JACK, Torquil Iain Maclean  Glaxo Wellcome plc  Gunnels Wood Road  Stevenage  Hertfordshire  SG1 2NY, GB	) )				
State (i.e. country) of nationality:  State (i.e. country) of residence:  GB  GB					
This person is applicant for the purposes of:  all designated States except the United States of America the United States of America only the Supplemental B					
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  KEELING, Steven Philip  Glaxo Wellcome plc  Gunnels Wood Road  Stevenage  Hertfordshire  SG1 2NY, GB	ьох )				
State (i.e. country) of nationality: State (i.e. country) of residence:					
This person is applicant for the purposes of:  GB  all designated States except the United States of America  The United States of America only  The United States of America only  The United States of America only  The States indicated the Supplemental Expression of America only  The United States of America only  The United Stat					
Name and address: (Family name followed by given name; for a legal entity, full official designation.  The address must include postal code and name of country. The country of the address indicated in this Box is the applicant's State (that is, country) of residence if no State of residence is indicated below.)  MASON, Andrew McMurtrie  This person is:  applicant only					
Glaxo Wellcome plc Gunnels Wood Road Stevenage Hertfordshire SG1 2NY, GB					
Gunnels Wood Road  Stevenage  Hertfordshire  SG1 2NY, GB  State (i.e. country) of nationality:  State (i.e. country) of residence:					
Gunnels Wood Road Stevenage Hertfordshire SG1 2NY, GB	d in				



Sheet No .4.....

			Jileet 1	10 . 7			
Continuation of Box No. III	FURTHER A	PPLIC.	ANTS AND/C	R (FURTH	ER) IN	VENTORS	
-						included in the request.	
Name and address: (Family ran The address must include postal co Box is the applicant's State (that is MORRISS, Karen Glaxo Wellcome plc Gunnels Wood Road Stevenage Hertfordshire SG1 2NY, GB State (i.e. country) of national This person is applicant for the purposes of:	de and name of co country) of reside.	nuntry. The	he country of the	address indicated b	ted in thi	This person is:  applicant only applicant and inventor inventor only (If this is marked, do not fill interpretation of residence:  GB the United States the States is	check-box a below.)
ime and address: (Family national the address must include postal of Box is the applicant's State (that is RAMSDEN, Nigel Grand Wellcome plc Gunnels Wood Road Stevenage Hertfordshire SG1 2NY, GB	ode and name of co s, country) of reside	ountry. T	he country of the	address indica ce is indicated l	nted in th	This person is:  applicant only applicant and invento inventor only (If this is marked, do not fill i	check-box
State (i.e. country) of nationa				State (i.e. c	ountry)	of residence:	
This person is applicant for the purposes of:	all designated States		all designated State		$\boxtimes$	the United States	indicated in mental Box
Name and address: (Family ru The address must include postal of Box is the applicant's State (that it WARD, Peter Flaxo Wellcome plc Gunnels Wood Road Stevenage Hertfordshire SG1 2NY, GB	ode and name of c s, country) of resid	country. T	The country of the	e address indica ace is indicated	ated in th	This person is:  applicant only applicant and invent inventor only (If this is marked, do not fill inventor)	check-box
State (i.e. country) of national	lity: GB			State (i.e. o	country)	of residence: GB	
This person is applicant for the purposes of:	all designated States		all designated S the United State		$\boxtimes$	are craises current	indicated in emental Box
Name and address: (Family n The address must include postal Box is the applicant's State (that	code and name of c	country.	The country of th	ne address indic	cated in t	This person is:  applicant only applicant and inven inventor only (If this is marked, do not fill	s check-box
State (i.e. country) of nation	ality:			State (i.e.	country	) of residence:	.,,
This person is applicant for the purposes of:	all designated States		all designated State	States except es of America			s indicated in lemental Box
Further applicants and	or (further) inve	entors a	re indicated on	a continuation	on sheet		
Fa- DCT/DO/101 (continu	ation sheet) (Inh	v 1998)				See Notes to the	request for

Box	x No. V	V DESIGNATION OF STATES	<u> </u>		
		wing designations are hereby made under Rule 4.9(a) (mar	rk th	e appl	icable check-boxes; at least one must be marked):
	gional	Patent			
	ΔP	ARIPO Patent: GH Ghana GM Gambia, KE Kenya, L	S Le	sotho,	MIW Malawi, SD Sudan, SZ Swaziland, UG
		Heanda ZW Zimbabwe, and any other State which is a	Cont	racting	g State of the Harare Protocol and of the PCT
Ø	FΔ	Eurasian Patent: AM Armenia, AZ Azerbaijan, BY Be	elarus	s, KG	Kyrgyzstan, KZ Kazakstan, MD Republic of
		Moldova, RU Russian Federation, TJ Tajikistan, TM Tur	rkme	nistar.	, and any other State which is a Contracting State
		of the Eurasian Patent Convention and of the PCT			
Ø	EP	Furonean Patent: AT Austria RE Belgium, CH and L.	I Sw	ıtzerla	and Liechtenstein, CY Cyprus, DE Germany,
٠		DK Denmark ES Spain FI Finland, FR France, GB Un	ited l	Kingd	om, GR Greece, IE Ireland, IT Italy, LU Luxembourg,
		MC Monaco, NL Netherlands, PT Portugal, SE Sweden,	and	any o	ther State which is a Contracting State of the European
		Patent Convention and of the PCT			
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		any other State which is a member State of OAPI and a C	Conti	racting	State of the PCT (if other kind of protection or
		treatment desired. specify on dotted line)			
Na	tional	Patent (if other kind of protection or treatment desired, s	ресіј	fy on c	dotted line):
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Ø	AZ	Azerbaijan			Republic of Moldova
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	BG BG	Bulgaria	_		
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	BY	Belarus			Malawi
_	CA	Canada		MX	Mexico
_		canada and LI Switzerland and Liechtenstein		NO	Norway
		China		NZ	New Zealand
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1 -	IL IN	IsraelIndia		US	United States of America
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Precautionary Designation Statement: In addition to the designations made above, the applicant also makes under Rule 4.9(b) all other designations which would be permitted under the PCT except any designation(s) indicated in the Supplemental Box as being excluded from the scope of this statement. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit. (Confirmation of a designation consists of the filing of a notice specifying that designation and the payment of the designation and confirmation fees. Confirmation must reach the receiving Office within the 15-month time limit.)



Sheet No .6..

				Silect No .o		<del></del>		
Box No. VI	PRIORIT	TY CLAIM		Further pri	iority claims are indicated in th			
					Where earlier application i			
Filing I of Earlier Ap (day/mont	plication	Numbe Of earlier app		national application: country	regional application:* regional Office	International application: receiving Office		
item (1) (18.12. 18 Decemb		9828074	1.6	GB				
item (2)		,						
item (3)								
The rece	iving Office	is requested to p	repare an	d transmit to the Internat	ional Bureau a certified copy			
of the ea	arlier applica	tion(s) (only if th	e earlier	application was filed with	h the Office which for the			
purpose.	s of the pres	ent international	applicati	on is the receiving Office	)identified above as item(s):			
* Where	the earlier ap <sub>l</sub> nvention for ti	plication is an AKI he Protection of In	PO appuci dustrial Pr	ation, it is manaatory to ina coperty for which that earli	icate in the Supplemental Box at lapplication was filed (Rue 4.10(b)	(ii)). See Supplemental Box.		
				HING AUTHORITY				
Box No. VII		rching Authority (			of earlier search; reference t	to that search (if an earlier		
*f two or more In	i itational Sea iternational Sea	arching Authorities	are		out by or requested from the Intern			
npetent to carr	ry out the intern	national search, ind	icate the	Date (day/month/year)		intry (or regional office)		
	; the two-letter	code may be used):						
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request		: 6	2.	separate signed power o	f attorney			
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sequence listin	-	: 72	4. 🗆	statement explaining lac				
	ig part)	. 72 : 10	5. 🗖		entified in Box No. VI as item(			
claims		: 10	6.	translation of international application into (language):				
abstract		: 1	7. 🗖	separate indications concerning deposited microorganism or other biological				
drawings		:	8. 🗖	material nucleotide and/or amino acid sequence listing in computer readable form				
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Total number			i	Language of	filing of the			
should accom					application: English			
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No. IX	SIGN	ATURE OF A	PPLICA	ANT OR AGENT	-			
Next to each sign	nature, indicate	the name of the per	son signing	and the capacity in which the	e person signs (if such capacity is not	obvious from reading the request).		
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Andrew J. 7	<b>TEUTEN</b>		۰					
Agent for t	he Applic	ants						
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1 Data of as	tual receipt	of the purported	<del></del>	For receiving Office u	<u>.</u>	2. Drawings		
	nal application		45(254)	6 DEC 1999	(1 6. 12. <b>99</b> )	a. Diamings		
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4. Date of time	mely receipt	of the required						
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5. Internatio	nal Searchin	Article 11(2): g Authority cant:  ISA	Δ/		nsmittal of search copy delayer	d		
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## PATENT COOPERATION TREATY

	From the INTERNATIONAL BUREAU			
PCT	To:			
NOTIFICATION OF ELECTION  (PCT Rule 61.2)  Date of mailing (day/month/year)	Assistant Commissioner for Patents United States Patent and Trademark Office Box PCT Washington, D.C.20231 ETATS-UNIS D'AMERIQUE			
17 August 2000 (17.08.00)	mas capacity as elected office			
International application No. PCT/EP99/10000	Applicant's or agent's file reference PG3612/PCT			
International filing date (day/month/year) 16 December 1999 (16.12.99)	Priority date (day/month/year) 18 December 1998 (18.12.98)			
Applicant				
ARMOUR, Duncan, Robert et al				
1. The designated Office is hereby notified of its election made in the demand filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 23 June 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 2000 in a notice effecting later election filed with the International Preliminar 200	y Examining Authority on: (23.06.00) national Bureau on:			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Charlotte ENGER			
acsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38			

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EP9910000

# PATENT COOPERATION TREATY

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NOTIFICATION OF THE RECORDING	TEUTEN, Andrew, J.				
OF A CHANGE	Glaxo Wellcome plc				
	Glaxo Wellcome House, Berkeley				
(PCT Rule 92bis.1 and	Avenue Greenford				
Administrative Instructions, Section 422)	Middlesex UB6 0NN				
Date of mailing (day/month/year)	ROYAUME-UNI				
29 August 2000 (29.08.00)					
	<u> </u>				
Applicant's or agent's file reference PG3612/PCT	IMPORTANT NOTIFICATION				
FG3012FC1					
International application No.	International filing date (day/month/year)				
PCT/EP99/10000	16 December 1999 (16.12.99)				
The following indications appeared on record concerning:					
X the applicant X the inventor	the agent the common representative				
	State of Nationality State of Residence				
Name and Address	GE GB				
CONGREAVE, Miles, Stuart Glaxo Wellcome Cambridge Laboratory	Telephone No.				
University Chemical Laboratory Lensfield Road					
Cambridge CB2 1EW	Facsimile No.				
United Kingdom					
	Teleprinter No.				
2. The International Bureau hereby notifies the applicant that t	he following change has been recorded concerning:				
the person X the name the add	dress the nationality the residence				
Name and Address	State of Nationality State of Residence				
CONGREVE, Miles, Stuart	GB GB				
Glaxo Wellcome Cambridge Laboratory	Telephone No.				
University Chemical Laboratory Lensfield Road					
Cambridge CB2 1EW United Kingdom	Facsimile No.				
Omica Kingdom					
	Teleprinter No.				
3. Further observations, if necessary:					
4. A copy of this notification has been sent to:					
X the receiving Office	the designated Offices concerned				
the International Searching Authority	X the elected Offices concerned				
X the International Preliminary Examining Authority	other:				
The International Bureau of WIPO	Authorized officer				
34, chemin des Colombettes 1211 Geneva 20, Switzerland	Catherine Massetti				
Facsimile No.: (41-22) 740 14 35	Telephone No : (41-22) 338.83.38				

Form PCT/IB/306 (March 1994)

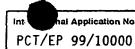
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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07D211/58 C07D295/20

C07C271/40 C07K5/06 C07D307/91 C07K17/08

C07D405/12 C07K1/04

A61P29/00

C07D307/66 A61K31/325

A61K31/445 A61K31/496 A61K31/5375 According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07D C07C C07K A61K IPC 7

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

1	C. DOC	UMENTS	CONSIDERED	TO	BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98 53817 A (MERK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application schemes 1-5 claims 1,11,13; examples	1,16, 18-21, 26-28
Α	WO 98 53814 A (MERCK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application scheme 1 claims 1,5,154,18-20; examples	1,16, 18-21, 26-28
A	WO 98 53818 A (MERCK & CO., INC.) 3 December 1998 (1998-12-03) cited in the application claims 1,5,8-10	1,16, 18-20
	-/	

İΧ	Further documents are listed in the	continuation of box C.
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Patent family members are listed in annex.

<ul> <li>Special categories</li> </ul>	of	cited	documents	
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- "A" document defining the general state of the art which is not considered to be of particular relevance
- earlier document but published on or after the international filing date
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- document referring to an oral disclosure, use, exhibition or
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- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled

Date of mailing of the international search report

"&" document member of the same patent family

Date of the actual completion of the international search

29/03/2000

22 March 2000 Name and mailing address of the ISA

> European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,

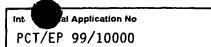
Hass, C

Authorized officer

Fax: (+31-70) 340-3016

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# INTERNATIONAL SEARCH REPORT



	<del></del>		
	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	<del></del>	
Category ?	Citation of document, with indication, where appropriate, of the relevant passages	Re	elevant to claim No.
A	GB 1 201 121 A (FARBWERKE HOECHST AG) 5 August 1970 (1970-08-05) claims 1,4,5,7; examples		1,16, 22-25
Α	US 4 105 602 A (R. L. COLESCOTT ET AL.) 8 August 1978 (1978-08-08) column 2, line 26 - line 37 columns 3 and 4, bottom of page, coupling reaction; columns 5 and 6, top of page, coupling reaction		26-28
Α	WO 98 54207 A (CELLTECH THERAPEUTICS LTD.) 3 December 1998 (1998-12-03) cited in the application		
Α	WO 97 03094 A (BIOGEN, INC.) 30 January 1997 (1997-01-30) cited in the application	·	

2

... rernational application No.

## INTERNATIONAL SEARCH REPORT

PCT/EP 99/10000

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. X Claims Nos.: 20 because they relate to subject matter not required to be searched by this Authority, namely:  Remark: Although claim 20 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
Claims Nos.:     because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

on on patent family members

Int Indiana Application No
PCT/EP 99/10000

Patent document cited in search report			Publication date		atent family nember(s)	Publication date
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				DE	1593858 A	29-10-1970
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